



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/381,526	04/12/2000	MARCEL AESCHLIMANN	41-303-3	4076

7609 7590 06/04/2003

RANKIN, HILL, PORTER & CLARK, LLP
700 HUNTINGTON BUILDING
925 EUCLID AVENUE, SUITE 700
CLEVELAND, OH 44115-1405

EXAMINER

PIAZZA CORCORAN, GLADYS JOSEFINA

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/381,526	AESCHLIMANN ET AL. <i>AJ</i>	
	Examiner	Art Unit	
	Gladys J Piazza Corcoran	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 March 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 23-46 and 48-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 23-30, 32-40, 43-46, 48-57 is/are rejected.
- 7) Claim(s) 31,41 and 42 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Objections

1. Claim 54 objected to because of the following informalities: Claim 54 line 2 recites, "material as said anchoring points" which should be --material at said anchoring points--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 29, 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 29 recites that "the step of fixedly attaching is performed before positioning the joining element in the bore." However, the specification only discloses fixedly attaching a second part to a second part after positioning the joining element in the bore (page 13, lines 5-10). Appropriate correction is required.

Claim 35 recites in line 2, "or which a cavity can be produced by pressure". There is no disclosure in the specification for this limitation. It is suggested to delete this limitation from the claim.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 26, 28, 29, 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 26 recites the limitation "the shoulders of the joining pin and bore" in line 8. There is insufficient antecedent basis for this limitation in the claim. There is a recitation of a shoulder of the joining pin but not the bore. It is suggested to amend line 6 to -- reduction in diameter of the joining pin forming a shoulder in the bore--.

7. Claim 27 is unclear by reciting in line 5, "joining pin has an enlarged head portion on an outer end thereof." It is unclear whether the enlarged head is on an outer end of the joining pin, how the end is an outer end (is it just one end of the pin or is the end of the pin outside of the bore or pieces to be joined), or if the outer end is referring to an end of the bore that is an outer end. Clarification is required.

8. Claim 28 recites the limitation "the second part" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested to amend to --a second part--.

9. Claim 35 recites, "anchoring a joining element in a structural component having a cavity or in which a cavity can be produced by pressure" and then later recites, "forming a bore in the component." It is unclear whether the cavity and the bore are the same or different parts of the component. It appears as though Applicant intends the bore to be the cavity in the structural component. Therefore, it is suggested to amend the claim to recite a structural component having a bore.

Previously Indicated Allowable Subject Matter

10. The indicated allowability of claims 23-35, 38-46, 48-57 is withdrawn in view of a new Examiner and newly discovered reference(s) to the oral translation of WO 96/01377. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 49, 50, 52, 55, 57 are rejected under 35 U.S.C. 102(e) as being anticipated by McDonnell (US Patent No. 5,785,476).

McDonnell discloses a joining element (fastener) for attachment in a bore having a closed inner end in a part comprising a porous material (wood), with a body having a tip defining a first preselected anchoring point and further having a thermoplastic material at said first anchoring point (the tip is of a soft material such as PVC which is thermoplastic), and at least part of the remainder of the body being from a different material than said thermoplastic material (the rest of the fastener is of a harder material; i.e. a standard nail or screw), and the body having an enlarged portion forming a head at the end of the body opposite of the tip (see figures), said thermoplastic material at said first anchoring point being plasticizable by an application of energy and pressure (it is thermoplastic, therefore it is capable of being plasticizable by an application of energy and pressure).

As to claim 50, the body is in the form of an elongated pin (see figures) and includes a second anchoring point of thermoplastic material spaced from said anchoring point (the first anchoring point is the tip and all the levels of threaded screw on the thermoplastic piece are anchoring points spaced from the tip). As to claim 52, the soft material of the tip (PVC) is considered to be plasticizable at a lower temperature than at the nail/screw portion of a different material. As to claim 55, the tip of the element is a point (see figures). As to claim 57, the thermoplastic material is PVC.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 23-26, 28-30, 33-40, 44-46, 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Aeschlimann et al. (WO 96/01377).

The follow rejections are based on the English abstract, drawings, and an oral translation from Martha A. Witebsky on May 22, 2003 of parts of the reference WO 96/01377, however, a full written translation of the reference may reveal that the claims are fully able to be rejected under 35 USC 102 alone without the need for a 35 USC 103 rejection.

Aeschlimann discloses a method for anchoring a joining element (8, 8.1, 8.2) in a part consisting of porous material (wood or wood-like materials G, H), the joining element including a thermoplastic material (page 16; thermoplastic dowel 8) at least at the location of a preselected anchoring point, where a bore is formed in the part having an inner closed end (blind hole, closed end 7) and being matched to the shape and dimensions of the joining element so that the joining element can be inserted into a first position in the bore with substantially no force (for example see figure 10 where the part is stepped and the dowel is stepped; the dowel slips into the bore without pressure until it hits a lower step, then the dowel is pushed into place with pressure and energy), positioning the joining element in the bore in the first position (see figure 10), applying pressure to force the element into a second deeper position in the bore (see figure 10; pages 16-18), the pressure being applied substantially along a central axis of the bore (see figure 9) and producing an increase of pressure at the preselected anchoring point between the joining element and walls of the bore, during the application of pressure, applying energy to the joining element to cause the thermoplastic to plasticize at the preselected anchoring point (ultrasonic energy is used to plasticize the dowel page 16), the pressure causing the plasticized thermoplastic material to flow into pores of the part adjacent the bore, thereby forming a macroscopic anchoring connection between the part and the joining element (strong local joint, thermoplastic penetrates the wood in the region of the tip of the dowel up to 50 mm; page 18).

It appears that all the limitations are met by the reference Aeschlimann from the oral translation, however should a written translation show that there are minor

deviations between the disclosure in Aeschlimann and the claimed invention, it appears that such would be obvious to one of ordinary skill in the art.

As to claim 24, Aeschlimann discloses that the joining element (dowel 8) and the part are both stepped and that the dowel could have more or less steps than the step in the part (page 18). It would have been obvious and well within the purview of one of ordinary skill in the art to select a dowel with more steps than the part where the dowel fits into all the steps of the part and the bottom of the bore and the steps form the anchoring positions. As to claim 25, Aeschlimann discloses providing the joining element and the bore with matching reductions in diameter to form shoulders with the joining elements resting on the shoulders of the bore and a preselected anchoring point is adjacent the closed end (the first shoulder on the bore) (see figure 10, page 18). As to claim 26, Aeschlimann discloses joining a second part of porous material (wood or wood-like material) to a first part (see figure 9), that the joining pin can have reductions in diameter intermediate the ends forming a shoulder (steps see page 18, figure 10), forming a bore through the second part (see figure 9) and through the first part to an inner closed end (see figures 9-11). Aeschlimann also discloses the bore has matching reductions in diameter to the joining pin with the shoulders of the joining pin contacting the shoulders in the bore forming macroscopic connections (steps page 18, figure 10). When Aeschlimann discloses the embodiment where the joint and the bore have steps, it is unclear if Aeschlimann discloses the stepped bore and joint in a second part for joining two parts, regardless, it would have been obvious to one of ordinary skill in the art joining two parts as shown in figure 9 to provide steps in the bores of the first and

second parts, only the expected results would be attained. As to claims 28 and 29, Aeschlimann discloses fixedly attaching the joining element to a second part (see figure 9). Aeschlimann also discloses that the dowels can be connected to other parts for fittings being fastened to wooden parts (page 17). It is unclear whether Aeschlimann discloses fastening the second part before or after positioning the joint in the bore, however it would have been obvious to one of ordinary skill in the art to do either, only the expected results would be attained. As to claim 30, Aeschlimann discloses ultrasonically exciting the joining element to cause the thermoplastic to plasticize (pages 16-18). As to claim 33, Aeschlimann discloses the part is wood or wood-like material. As to claim 34, Aeschlimann discloses the part is a porous part of wood or wood-like material. It is unclear whether Aeschlimann discloses using the method with other parts such as sandstone, porous ceramic, burnt brick, or concrete, however, it is well known to provide dowels in such materials and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of Aeschlimann with well known parts in the art, only the expected results would be attained.

As to claim 36, Aeschlimann discloses a combination of a joining element (8.1) and a part (wood or wood-like part), with the part defining a bore (7.1), the bore having a closed inner end (see figure 10), an open outer end (see figure 10), and a cylindrical inner surface (pages 16-18). The first cylindrical portion is adjacent to the closed inner end and a second cylindrical portion between the first portion and the open out end, the second portion having a greater diameter than the first portion (see figure 10). The joining element comprising a body member disposed in the bore, with a first and second

portion (steps see figure 10) with the first portion of the joining element having a diameter about equal to the first portion in the bore and the second portion of the joining element having a diameter about equal to the second portion in the bore (see figure 10, the steps in the joining element fit into the steps of the bore in a first position as shown in figure 10 and in a second position once it is bonded, therefore having equal diameters to the bore in either position). The steps of the joints form anchor points and the entire dowel is thermoplastic, therefore there is thermoplastic material adjacent each point (it is noted that Applicant is not claiming that the points have different thermoplastic material.) Aeschlimann also discloses having applied pressure and energy to form macroscopic cavities and to plasticize the thermoplastic materials to flow into the macroscopic cavities (pages 16-18).

As to claim 37, Aeschlimann discloses a combination of a joining element (8.2) and a part (wood or wood-like part), the part defining a bore having a closed inner end (7.1) and an open outer end (tope of bore in figure 10), the joining element comprising an elongated body member disposed in said bore (see figure 10), said body member having a thermoplastic material at a first anchor point at a tip adjacent to said closed inner end (the entire dowel is thermoplastic pages 16-18), and a head portion on said body member (the top stepped portion of 8.2, see figure 10), said head portion being disposed at said open outer end (figure 10), the thermoplastic material at the first anchor point having been responsive to an application of pressure to said head portion and energy to said anchor point so as to have formed a macroscopic anchor cavity in said part at said closed inner end, and said thermoplastic material having been

plasticized by said application of pressure and energy so as to have flowed into said macroscopic cavity, and thereby to have formed a macroscopic anchor connection to secure said joining element to said part (pages 16-18).

As to claim 38, the elongated pin (dowel 8.1) has a second anchor point of thermoplastic material spaced from the first anchor points, (each of the steps have anchor points and the dowel is of thermoplastic material). As to claim 39, Aeschlimann discloses the dowels can be used to connect fittings to be fastened to wooden parts (page 17), it is considered well known in the art to provide an internal threaded opening in dowels for connecting fittings to be fastened to wooden parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide internal threading on the dowel of Aeschlimann in order to connect fitted parts to the wooden parts as is considered well known in the art. As to claim 40, the entire dowel is of thermoplastic material (pages 16-18). As to claims 44 and 45, it is considered well known to provide a pointed tip or a concave tip for dowels for connecting parts and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the dowel in Aeschlimann with a point or concave, only the expected results would be attained. As to claim 45, the dowel in Aeschlimann has a flat tip (see figures). As to claim 46, it appears that Aeschlimann discloses the claimed thermoplastics for the thermoplastic dowel (see page 11). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the thermoplastic dowel in Aeschlimann out of well known materials for thermoplastic dowels, only the expected results would be attained.

As to claim 48, Aeschlimann discloses a joining element (8.1) for attachment in a bore having a closed inner end (7.1) in a part comprising a porous material (wood or wood-like part), comprising a body having a tip defining a first preselected anchoring point, and a second preselected anchoring point spaced from said first anchoring point (steps formed in the dowel), the body comprising a first thermoplastic material at said first anchoring point and a second thermoplastic material at said second anchoring point (the entire dowel is thermoplastic), the body having a cross-sectional area at said second anchoring point that is larger than a cross-sectional area at said first anchoring point (see figure 10), the thermoplastic materials at the first and second points being plasticizable by application of energy and pressure (pages 16-18).

16. Claims 26, 27, 37, 38, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. as applied to claim 23 above, and further in view of O'Conner et al. (US Patent No. 4,761,871) and/or Bappert et al. (US Patent No. 4,675,972).

Aeschlimann discloses joining two parts with a joining pin. It is not clear whether Aeschlimann discloses that the bore through the second porous part has an outer end for an enlarged head of the joining pin. However, it is well known to join two porous parts by forming a bore through a second part and into a first part with a inner closed end and where the outer end of the bore allows for a joining pin with an enlarged head in order to additionally mechanically joining the parts together. For example, O'Conner discloses a method of joining parts where a joining pin, with an enlarged head, is provided through a bore through a second part and into a first part with a closed end in

order to additionally mechanically hold the second part to the first part (see figure 9; column 6, lines 44-64). Bappert also discloses an example of joining parts where a joining pin, with an enlarged head, is provided through a bore through a second part and into a first part with a closed end in order to firmly press the second part to the first part (see figures; column 1, lines 7-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of joining two parts with a joining element as shown by Aeschlimann where the bore hold is through the second part and the joining pin has an enlarged head as it is well known to join parts together in this fashion as exemplified by O'Conner and or Bappert in order to provide additional mechanical joining of the two parts.

Claims 37, 38, and 40 are addressed in the paragraph above.

17. Claims 28, 29, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (optionally in view of O'Conner et al. and/or Bappert et al.) as applied to claims 23, 38 above, and further in view of Lautenschlager (US Patent No. 5,308,205).

Aeschlimann appears to disclose using the dowel (8) for fixing parts to a porous part (page 17). It is well known in the art to use dowels in wooden parts for fixedly attaching second parts to the wooden part. It is also known to provide an internally threaded opening for receiving an attachment. As to claim 29 where the second part is fixedly attached to the dowel prior to positioning the joining element in the bore, it would have been well within the purview of one of ordinary skill in the art to fixedly attaché the second part to the dowel either before or after the dowel is positioned in the bore of the

first part, only the expected results would be attained. Furthermore, Lautenschlager discloses a dowel (10) for fixedly attaching second parts (either screw 24 or part 12) to a first part (14) (see figures 3, 4, 6). As to claim 39, Lautenschlager discloses the dowel having an internally threaded opening for receiving an attachment (the screw is threadedly attached to the dowel). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of joining parts as shown in Aeschlimann where the joining element fixedly attaches a second part to the first part with an internal thread in order to fixedly attach parts to each other as is well known and exemplified by Lautenschlager.

18. Claims 32, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (optionally in view of O'Conner et al. and/or Bappert et al.) as applied to claims 23, 38 above, and further in view of Yokoyama et al. (US Patent No. 5,780,536).

Aeschlimann discloses forming a joint by applying pressure and energy (including ultrasonic energy) to a thermoplastic dowel in order to plasticize the dowel for bonding within the joint. It is unclear whether Aeschlimann discloses providing other sources of energy for plasticizing the thermoplastic dowel. Yokoyama discloses it is known to plasticize thermoplastic fasteners in joints by providing the thermoplastic fastener with metal particles and inductively heating the fastener (column 2, lines 1-45; column 3, lines 1-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to plasticize the thermoplastic material in Aeschlimann by providing metal particles in the thermoplastic material and inductively heating the joining

element in order to provide energy to the joining element and plasticize the thermoplastic material for bonding to the joining parts as exemplified by Yokoyama.

19. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. as applied to claim 23 above, and further in view of Muller et al. (US Patent No. 4,100,954).

Aeschlimann discloses the parts to be joined with the joining element are porous parts like wood or wood-like materials. It is unclear whether Aeschlimann discloses using other porous materials for the parts such as sandstone, porous ceramic, burnt brick, or concrete, however these are well known materials for joining with dowels in construction. For example, Muller discloses a method of providing anchors in porous materials such as concrete, brickwork, etc (column 1, lines 7-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the method of joining parts as shown by Aeschlimann with parts made of well known porous materials such as sandstone, porous ceramic, burnt brick, or concrete as are well known in the construction industry and further exemplified by Muller, only the expected results would be attained.

20. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (optionally in view of O'Conner et al. and/or Bappert et al.) as applied to claim 38 above, and further in view of Hendrickson (US Patent No. 5,125,442) and/or Kessler (US Patent No. 3,723,215).

It is unclear what tips Aeschlimann discloses for the dowel, however it is well known in the art to provide a pointed tip for a dowel when connecting parts. For

example, Hendrickson discloses a dowel for connecting parts with a pointed tip. Kessler also discloses a dowel with a pointed tip for connecting parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the joining element in Aeschlimann with a pointed tip as is considered well known in the art to provide dowels with such a well known shape and as further exemplified by Hendrickson and/or Kessler, only the expected results would be attained.

21. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (optionally in view of O'Conner et al. and/or Bappert et al.) as applied to claim 38 above, and further in view of Green (US Patent No. 2,510,693) and/or Clark (US Patent No. 772,029).

It is unclear what tips Aeschlimann discloses for the dowel, however it is well known in the art to provide a concave tip for fasteners when connecting parts. For example, Green discloses a fastener for connecting parts with a concave tip (see figure 4). Clark also discloses a fastener with a concave tip for connecting parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the joining element in Aeschlimann with a concave tip as is considered well known in the art to provide fasteners with such a well known shape and as further exemplified by Green and/or Clark, only the expected results would be attained.

22. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aeschlimann et al. (optionally in view of O'Conner et al. and/or Bappert et al.) as applied to claim 37 above, and further in view of Hewitt (US Patent No. 3,481,803).

It appears as though Aeschlimann discloses the thermoplastic dowel is composed of the thermoplastic materials as claimed on page 11. Furthermore, it would have been well within the purview of one of ordinary skill in the art to provide the thermoplastic dowel from known thermoplastic materials for fasteners in the art. For example, Hewitt discloses forming thermoplastic fasteners from the materials as claimed (column 5, lines 43-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the thermoplastic dowel in Aeschlimann with well known thermoplastics in the art as exemplified by Hewitt, only the expected results would be attained.

23. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 49 above, and further in view of Green (US Patent No. 2,510,693) and/or Clark (US Patent No. 772,029).

It is well known in the art to provide a flat or concave tip for fasteners when connecting parts. For example, Green discloses a fastener for connecting parts with a flat (see figure 3) or concave tip (see figure 4). Clark also discloses a fastener with a concave tip for connecting parts. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fastener in McDonnell with a flat or concave tip as is considered well known in the art to provide fasteners with such a well known shape and as further exemplified by Green and/or Clark, only the expected results would be attained.

24. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 49 above, and further in view of Hewitt (US Patent No. 3,481,803).

McDonnell discloses forming the tip from a soft material such as PVC. It would have been well within the purview of one of ordinary skill in the art to provide the thermoplastic tip from known thermoplastic materials for fasteners in the art. For example, Hewitt discloses forming thermoplastic fasteners from the materials as claimed (column 5, lines 43-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fastener in McDonnell with well known thermoplastics in the art as exemplified by Hewitt, only the expected results would be attained.

25. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 50 above, and further in view of Lautenschlager (US Patent No. 5,308,205).

It is well known in the fastening art to provide an internally threaded opening for receiving additional attachments. For example, Lautenschlager discloses a fastener (10) with an internally threaded opening for receiving a fitting (screw 24) (see figures 3, 4, 6) (the screw is threadedly attached to the fastener). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fastener as shown in McDonnell where the joining element has an internally threaded opening for receiving a fitting as is considered known in the fastener art and exemplified by Lautenschlager, only the expected results would be attained.

26. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 49 above, and further in view of Reader's Digest (Complete Do-it-yourself Manual) and/or Gladstone (The Simon and Schuster Complete Guide to Home Repair and Maintenance).

McDonnell discloses the invention of a nail or screw with a soft tip of material such as the thermoplastic PVC. McDonnell does not specifically disclose the material for the nail or screw main body, however, it is well known to form screws and nails of a variety of metal materials. For example, Reader's digests discloses typical materials for nails, including copper, aluminum, brass, bronze, stainless steel, etc. (page 69). Simon discloses typical materials for screws, including steel, brass, bronze, aluminum, stainless steel (page 45). These metal materials have higher melting points than the soft material of PVC for the tip of the screw or nail in McDonnell. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fastener of McDonnell with conventional materials for the screw or nail as exemplified by Reader's Digest and/or Gladstone which have higher melting temperatures than the thermoplastic material at the tip, only the expected results would be attained.

27. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 50 above, and further in view of Adams et al. (US Patent No. 4,717,302) and/or Tucker et al. (US Patent No. 5,547,325).

McDonnell discloses the invention of a nail or screw with a soft tip of material such as the thermoplastic PVC. McDonnell does not specifically disclose the material for the nail or screw main body, however, it is well known to form screws and nails of a

variety of materials including thermosetting material. For example, Adams discloses a fastener formed of a thermosetting material composite. Tucker also discloses an example of a nail fastener formed of a thermosetting material (column 4, lines 52-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the screw or nail of McDonnel with conventional materials for the screw or nail as exemplified by Adams and/or Tucker such as thermosetting materials, only the expected results would be attained.

28. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDonnell as applied to claim 50 above, and further in view of Yokoyama et al. (US Patent No. 5,780,536).

McDonnell discloses a fastener with a thermoplastic tip. Yokoyama discloses it is known to provide metal particles into thermoplastic fasteners in order to plasticize thermoplastic fasteners when forming joints in order to enhance the bonding of the fastener to the parts (column 1, lines 5-45; column 2, lines 1-45; column 3, lines 1-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the fastener of McDonnell with metal particles in the thermoplastic material in order to plasticize the thermoplastic fastener material for enhancing the bonding to the joining parts as exemplified by Yokoyama.

Allowable Subject Matter

29. Claims 31, 41, 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 31, absent additional art, no prior art was found to show or suggest a method of anchoring a joining element in a part by forming a bore, positioning the joining element in the bore as claimed, applying pressure and energy to the joining element to form a macroscopic anchoring connection, where the joining element consists entirely of thermoplastic material capable of being plasticized in the region of an anchoring point at a lower temperature than the remainder of the element, and wherein the step of applying energy includes heating the joining element in the claimed environment.

As to claim 41, absent additional art, no prior art was found to show or suggest a combination of a joining element and a part having a bore, the joining element consisting entirely of thermoplastic material has an elongated body member disposed in the bore and a head portion disposed at an open outer end with a macroscopic connection securing the joining element to the part where the thermoplastic material of the joining element at anchoring points (one at a tip adjacent to the closed inner end and another spaced from the first) is plasticizable at a lower temperature than at other portions of the joining element in the claimed environment.

As to claim 42, absent additional art, no prior art was found to show or suggest a combination of a joining element and a part having a bore, the joining element with a thermoplastic material at a fist anchor point, has an elongated body member disposed in the bore and a head portion disposed at an open outer end with a macroscopic

connection securing the joining element to the part where the joining element comprises thermosetting material and having thermoplastic material at pre-selected anchoring points (one at a tip adjacent to the closed inner end and another spaced from the first).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gladys J Piazza Corcoran whose telephone number is (703) 305-1271. The examiner can normally be reached on M-F 8am-5:30pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Gladys J P Corcoran
May 27, 2003


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700